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L Number	Hits	Search Text	DB	Time stamp
1	3	(shared adj2 runtime adj2 system)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 20:21
2	0	(shared adj2 runtime adj2 (data adj strucure))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 20:21
3	0	(shared same runtime same (data adj strucure))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 20:21
4	207	(shared same runtime same (data))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 20:22
5	10	(shared same runtime same (class same representation))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 20:33
6	275	(Multi-tasking adj Virtual adj Machine) or (MVM)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 20:33
7	9	((Multi-tasking adj Virtual adj Machine) or (MVM)) and java	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 20:37
8	199	(class near4 initial$7) same java same (mvm or (java or (multi-task$3) or (multi adj task$3) adj ((virtual adj machine) or VM)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 20:40
9	31	((class near4 initial$7) same java same (mvm or (java or (multi-task$3) or (multi adj task$3) adj ((virtual adj machine) or VM)))) same runtime	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 20:40
10	28	(((class near4 initial$7) same java same (mvm or (java or (multi-task$3) or (multi adj task$3) adj ((virtual adj machine) or VM)))) same runtime) same (class near4 initializ$7)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 20:41
11	9	((((class near4 initial$7) same java same (mvm or (java or (multi-task$3) or (multi adj task$3) adj ((virtual adj machine) or VM)))) same runtime) same (class near4 initializ$7)) same represent$5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 20:54
12	2	(class near4 initializ$5) same (platform-independent) same (trig$5 same class)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 20:56
13	15	(class near4 initializ$5) same (trig$5 same class)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:23

14	189	bootstrap$3 same class	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:23
15	35	bootstrap$3 same class same initializ$5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:24
16	1	bootstrap$3 same class same initializ$5 same ((virtual adj machine) or vm) same thread$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:24
17	1	bootstrap$3 same class same initializ$5 same ((virtual adj machine) or vm)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:25
18	35	bootstrap$3 same class same initializ$5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:25
19	1	bootstrap$3 near6 (class same initializ$5)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:26
20	2	bootstrap$3 near10 (class same initializ$5)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:26
21	1	((bootstrap$3 near2 class) same initializ$5)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:27
22	12	((bootstrap$3 near2 class)and initializ$5)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:36
23	1	(bootstrap$3 near2 class) same (startup$3 near6 task$3) same concurrency	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:30
24	1	((bootstrap$3 near2 class) same initializ$5)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:36
25	35	(bootstrap$3 same class same initializ$5)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:36
26	19	(bootstrap$3 same class same initializ$5) same java	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:48
27	0	bootstrap$3 same thread$3 same conceurren$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:48

28	0	bootstrap$3 same concurren$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:49
29	0	bootstrap$4 same conceurren$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:49
30	55	bootstrap$4 same concurren$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 21:49
31	4	bootstrap$4 same concurren$3 same thread$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:08
33	0	assign$3 same value same initializer same class same JAVA	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:09
32	11	assign$3 same value same initializer same class	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:10
34	6	assign$3 same value same (initializer near4 class)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:25
35	1	set$4 same (binary adj variable) same zero same (start$3 same (multitasking adj virtual adj machine))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:28
36	1	set$4 same (binary adj variable) same zero same (start$3 same (virtual adj machine))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:29
37	0	set$4 same (binary adj variable) same zero same (start$3 same (vm))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:29
38	0	set$4 same (binary adj variable) same (start$3 same (vm))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:29
39	51	set$4 same (binary adj variable) same zero	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:29
40	0	set$4 same (binary adj variable) same zero same java	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:30
41	2	set$4 same (binary adj variable) same zero same multitasking	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:32

42	0	set$4 same initializer same zero same multitasking	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:32
43	0	reset same initializer same multitasking	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:33
44	1	null same initializer same multitasking	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:33
45	1	null same initializer same java	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:33
46	20	null same initializer	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:36
47	4	java same getstatic same null	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:38
48	26	java same getstatic	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:48
49	5	java same getstatic same initializ$5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:52
50	23	java same bootstrap$4 same initializ$5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:53
51	0	java same bootstrap$4 same initializ$5 same (getstatic or putstatic or invokestatic or new)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:53
52	23	java same bootstrap$4 same initializ$5 and (getstatic or putstatic or invokestatic or new)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:54
53	69	java and (bootstrap$4 same initializ$5 and (getstatic or putstatic or invokestatic or new))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 22:54
54	5	java same (bootstrap$4 same initializ$5 and (getstatic or putstatic or invokestatic or new))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 23:00
55	0	java same (bootstrap$4 same null)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 23:39

56	67	bootstrap$4 same null	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 23:00
57	11	(bootstrap$4 same null) same initial$7	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 23:04
58	3	((bootstrap$4 same null) same initial$7) and (multi-task$3 or multitask$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 23:21
59	4	((bootstrap$4 near4 class) same initial$7)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 23:25
60	0	("9505919").PN.	USPAT	2004/09/05 23:25
61	41	java same (class same initializ$5 same null)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 23:40
66	0	java same task same intializ$5 same assign$3 same value	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/06 00:13
67	0	java same task same (class adj3 intializ$5) same assign$3 same value	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/06 00:13
68	0	java same (class adj3 intializ$5) same assign$3 same value	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/06 00:13
69	0	java same (class adj3 intializ$5) same assign$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/06 00:13
70	0	(class adj3 intializ$5) same assign$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/06 00:13
71	5	(class adj3 intializ$5)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/06 00:55

72	30	(US-6038597-$ or US-6167383-$ or US-5991543-$ or US-5995757-$ or US-6718373-$ or US-6052720-$ or US-6714937-$ or US-6117187-$ or US-6253300-$ or US-6510402-$ or US-6615365-$ or US-6330653-$ or US-6230285-$ or US-5787491-$ or US-6581191-$ or US-6067413-$ or US-6704927-$ or US-5995753-$ or US-6570564-$ or US-6279109-$ or US-5884083-$ or US-5432900-$ or US-5729710-$ or US-6633837-$ or US-6085034-$).did. or (US-20040025154-$ or US-20010003824-$ or US-20040015921-$).did. or (WO-200161486-$).did. or (NB940415).tban.	USPAT; US-PGPUB; DERWENT; IBM_TDB	2004/09/06 00:55
75	2	((US-6038597-$ or US-6167383-$ or US-5991543-$ or US-5995757-$ or US-6718373-$ or US-6052720-$ or US-6714937-$ or US-6117187-$ or US-6253300-$ or US-6510402-$ or US-6615365-$ or US-6330653-$ or US-6230285-$ or US-5787491-$ or US-6581191-$ or US-6067413-$ or US-6704927-$ or US-5995753-$ or US-6570564-$ or US-6279109-$ or US-5884083-$ or US-5432900-$ or US-5729710-$ or US-6633837-$ or US-6085034-$).did. or (US-20040025154-$ or US-20010003824-$ or US-20040015921-$).did. or (WO-200161486-$).did. or (NB940415).tban.) and superclass	USPAT	2004/09/06 00:56
-	1	("20040025154").PN.	USPAT; US-PGPUB	2004/04/07 20:33
-	4	(("5991543") or ("5995757") or ("6038597") or ("6167383")).PN.	USPAT; US-PGPUB	2004/04/05 14:28
-	1	("6714937").PN.	USPAT; US-PGPUB	2004/04/07 20:38
-	3	(("6052720") or ("6117187") or ("6718373")).PN.	USPAT; US-PGPUB	2004/04/07 20:38
-	0	((log$4 adj in) same access$3 same network$3) and 717/$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 16:29
-	38	(log$4 adj in) same access$3 same network$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 16:30
-	4	(log$4 adj in) same access$3 same network$3 same security	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 17:24
-	571	partition same storage same software	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 17:25
-	84	partition same storage same software same image	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 17:25
-	18	partition same storage same software same image same copy$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 17:27

-	4	((creat$3 or mak$3) near4 partition) same storage same software same image same copy$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 19:02
-	23	(partition$3) same storage same software same image same copy$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 19:05
-	37	(Partition adj Magic)(partition$3) same storage same software same image same copy$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/12 10:54
-	2	vsame	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 19:05
-	2	(Partition adj Magic)same(partition$3) same storage same software same image same copy$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 19:06
-	2	(Partition adj Magic)same(partition$3) same storage same software	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 19:05
-	2	(Partition adj Magic)same(partition$3) same storage	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 19:05
-	2	(Partition adj Magic) same storage same software same image same copy$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 19:06
-	2	(Partition adj Magic) same storage same software	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 19:06
-	2	(Partition adj Magic) same storage	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 19:06
-	16	(Partition adj Magic)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 19:09
-	27	powerquest same partition$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 19:10
-	1	("5,675,769").PN.	USPAT	2004/04/09 19:40
-	1210	creat$3 near3 partition	USPAT	2004/04/09 19:41
-	6	(creat$3 near3 partition) same software same copy$3	USPAT	2004/04/09 19:44
-	2	(creat$3 near2 partition) same software same copy$3	USPAT	2004/04/09 19:45
-	2	(creat$3 near2 partition) same software same copy$3	USPAT	2004/04/09 19:45

–	7	(creat$3 near2 partition) same software same copy$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 19:47
–	102	(creat$3 near2 partition) same software	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/09 19:47
–	2	(creat$3 same (Partition adj Magic) same (partition$3)) same storage same software same image same copy$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/12 10:55
–	8	(creat$3 same (Partition adj Magic) same (partition$3))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/12 10:56
–	8	(creat$3 same (Partition adj Magic) same (partition$3)) and (Partition adj Magic)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/12 11:05
–	5	(creat$3 same (Partition adj Magic) same (partition$3)) and (Partition adj Magic) and PowerQuest and (drive adj Image)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/12 11:22
–	6	(Partition adj Magic) and PowerQuest and (drive adj Image)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/12 16:35
–	43	built-to-order	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/12 14:15
–	2	built-to-order and (software near2 image)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/12 14:15
–	6	(Partition adj Magic) and (drive adj Image)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/12 16:35
–	46	latency with (fiber adj optics)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/13 13:14
–	1	latency with (fiber adj optics)	USPAT	2004/04/13 13:14
–	32	(creat$3 near3 (partition or drive)) and (boot$3 near2 disk) and NT	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 10:05
–	963	((creat$3 near3 additional) same(partition or drive))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 10:06

-	174	((creat$3 near3 additional)near3 (partition or drive))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 10:06
-	432	((creat$3 near3 (additional or new))near3 (partition or drive))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 10:06
-	15	((creat$3 near3 (additional or new))near3 (partition or drive)) same boot$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 11:17
-	2	(copy$3 near3 software) same (other near3 system)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 11:19
-	29	(stor$3 near3 software) same (other near3 system)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 11:22
-	0	(copy$3 near3 software) same network same (other near3 system)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 11:22
-	5	(copy$3 near3 software) same network same (other)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 11:24
-	102	(copy$3 near3 software) same (network same install$5)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 11:24
-	1	(copy$3 near3 software) same (network same install$5) same other	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 11:26
-	12	5406269.URPN.	USPAT	2004/04/14 11:25
-	170	(copy$3 near3 software) same between same system	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 11:27
-	25	(copy$3 near3 software) same between same different same system	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 11:29
-	11094	network near3 install$5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 11:29
-	339	(network near3 install$5) and (image same copy$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 11:30

-	45	((network near3 install$5) and (image same copy$3)) and (location near3 image)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 11:30
-	25	(((network near3 install$5) and (image same copy$3)) and (location near3 image)) and (boot$3 or re-boot$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 12:44
-	103	request same transfer$3 same file same link same location	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 13:51
-	27	transfer$3 same file same link same location same FTP	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 13:53
-	1	transfer$3 same file same link same location same FTP same upload$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 13:55
-	2	transfer$3 same file same link same location same FTP and upload$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 13:55
-	591	FTP same upload$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 13:55
-	3	FTP same upload$3 same location same link	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 13:56
-	83	FTP same location same link	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 14:00
-	0	FTP same location same (stor$3 near3 link)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 14:02
-	14	FTP same (stor$3 near3 link)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 16:00
-	83	FTP same location same link	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 16:00
-	10	(upload$3 adj2 file) same location same link	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 16:02
-	15	(upload$3 adj4 file) same location same link	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 16:03

–	71	(upload$3 same file) same location same link	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/14 16:03
–	1	("5881291").PN.	USPAT	2004/09/05 17:12
–	1	("5263174").PN.	USPAT	2004/09/05 17:28
–	1	("6205579").PN.	USPAT	2004/09/05 17:32
–	2	(("5666533") or ("6026235")).PN.	USPAT	2004/09/05 17:43
–	1	augment$3 same (shared near4 (runtime adj 6714937.PN. data adj 6714937.PN. structure)) same (represent$5) same (class near4 (initializ$4)) same (platform-independent same instruction) same trig$3 same (initialization adj4 class)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 17:48
–	1	augment$3 same (shared near4 (runtime adj 6714937.PN. data adj 6714937.PN. structure)) same (represent$5) same (class near4 (initializ$4))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/09/05 20:19

Terms used **multitasking virtual machine**

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1 Multitasking without comprimise: a virtual machine evolution

Grzegorz Czajkowski, Laurent Daynés

October 2001 **ACM SIGPLAN Notices , Proceedings of the 16th ACM SIGPLAN conference on Object oriented programming, systems, languages, and applications**, Volume 36 Issue 11

Full text available: pdf(220.97 KB) Additional Information: full citation, abstract, references, citings, index terms

The multitasking virtual machine (called from now on simply MVM) is a modification of the Java virtual machine. It enables safe, secure, and scalable multitasking. Safety is achieved by strict isolation of application from one another. Resource control augment security by preventing some denial-of-service attacks. Improved scalability results from an aggressive application of the main design principle of MVM: share as much of the runtime as possible among applications and replicate everything el ...

Keywords: Java virtual machine, application isolation, native code execution, resource control

2 Application isolation in the Java Virtual Machine

Grzegorz Czajkowski

October 2000 **ACM SIGPLAN Notices , Proceedings of the 15th ACM SIGPLAN conference on Object-oriented programming, systems, languages, and applications**, Volume 35 Issue 10

Full text available: pdf(217.49 KB) Additional Information: full citation, abstract, references, citings, index terms

To date, systems offering multitasking for the Java™ programming language either use one process or one class loader for each application. Both approaches are unsatisfactory. Using operating system processes is expensive, scales poorly and does not fully exploit the protection features inherent in a safe language. Class loaders replicate application code, obscure the type system, and non-uniformly treat 'trusted' and 'untrusted' classes, which leads to subtle, but nevertheless, potenti ...

Keywords: Java Virtual Machine, application isolation, multitasking

3

An implementation scheme for a virtual machine monitor to be realized on user -

microprogrammable minicomputers
B. D. Shriver, J. W. Anderson, L. J. Waguespack, D. M. Hyams, R. A. Bombet
October 1976 **Proceedings of the annual conference**

Full text available: pdf(654.60 KB) Additional Information: full citation, abstract, references, citings, index terms

A virtual machine monitor allows several different operating systems to run concurrently on the same machine. This paper presents the description of a virtual machine monitor and its support structure which can be implemented on a microprogrammable minicomputer or a distributed network of such machines. In our approach, all storage, transformational, input, and output resources of the system are accessed through a mapping mechanism. The design and implementation methodology for an actual re ...

4 Virtual machine monitors: Xen and the art of virtualization
Paul Barham, Boris Dragovic, Keir Fraser, Steven Hand, Tim Harris, Alex Ho, Rolf Neugebauer, Ian Pratt, Andrew Warfield
October 2003 **Proceedings of the nineteenth ACM symposium on Operating systems principles**

Full text available: pdf(168.76 KB) Additional Information: full citation, abstract, references, citings, index terms

Numerous systems have been designed which use virtualization to subdivide the ample resources of a modern computer. Some require specialized hardware, or cannot support commodity operating systems. Some target 100% binary compatibility at the expense of performance. Others sacrifice security or functionality for speed. Few offer resource isolation or performance guarantees; most provide only best-effort provisioning, risking denial of service.This paper presents Xen, an x86 virtual machine monit ...

Keywords: hypervisors, paravirtualization, virtual machine monitors

5 On the relationship between virtual machines and emulators
Efrem G. Mallach
March 1973 **Proceedings of the workshop on virtual computer systems**

Full text available: pdf(422.48 KB) Additional Information: full citation, abstract, references, citings, index terms

The subjects of virtual machines and emulators have been treated as entirely separate. The purpose of this paper is to show that they have much in common. Not only do the usual implementations have many shared characteristics, but this commonality extends to the theoretical concepts on which they are based; the concepts of memory mapping and I/O operation simulation are discussed to emphasize this. The paper then discusses structural issues, and points out why the question of instruction se ...

6 Small virtual machines: A survey
Lloyd I. Dickman
March 1973 **Proceedings of the workshop on virtual computer systems**

Full text available: pdf(396.47 KB) Additional Information: full citation, abstract, references, citings, index terms

It has been demonstrated that virtual machines can be successfully implemented on large computer systems. They can also be implemented on small computer systems ("mini-computers"). The paper will show this, and at the same time discuss the various architectural features by which virtual machine implementation is achieved. Examining features which make machines "small", we find architectural limitations. These machines are usually byte or word addressable w ...

7 The virtual machine and user process model used inmoses2: a microcomputer operating system environment simulator
Robert E. England
December 2001 **Journal of Computing Sciences in Colleges**, Volume 17 Issue 2
Full text available: pdf(39.30 KB) Additional Information: full citation, abstract, references, index terms

This paper discusses the design and development of two primary components of Moses2, a virtual computing environment for use in undergraduate operating systems courses. Moses2 is an entirely original work produced and refined by the author over the last twelve years in conjunction with teaching senior level operating systems courses. In the Moses2 environment, students run and test original kernel emulator programs while they develop these programs as course projects. The features of the system ...

8 Incommunicado: efficient communication for isolates
Krzysztof Palacz, Jan Vitek, Grzegorz Czajkowski, Laurent Daynas
November 2002 **ACM SIGPLAN Notices , Proceedings of the 17th ACM SIGPLAN conference on Object-oriented programming, systems, languages, and applications**, Volume 37 Issue 11
Full text available: pdf(386.23 KB) Additional Information: full citation, abstract, references

Executing computations in a single instance of safe language virtual machine can improve performance and overall platform scalability. It also poses various challenges. One of them is providing a fast inter-application communication mechanism. In addition to being efficient, such a mechanism should not violate any functional and non-functional properties of its environment, and should also support enforcement of application-specific security policies. This paper explores the design and implement ...

Keywords: application isolation, inter-application communication

9 Fault tolerant distributed services
Allan D. Griefer, H. Raymond Strong
January 1988 **Proceedings of the seventh annual ACM Symposium on Principles of distributed computing**
Full text available: pdf(1.12 MB) Additional Information: full citation, references, citings, index terms

10 Machine organization for multiprogramming
Peter Wegner
January 1967 **Proceedings of the 1967 22nd national conference**
Full text available: pdf(1.63 MB) Additional Information: full citation, abstract, references, citings, index terms

This paper is intended as an introduction to some of the basic concepts of multiprogramming for readers who wish to study the more specialized literature in this field. It attempts to develop a framework for the discussion of multiprogramming which motivates the forms of machine organization used in current multiprogramming systems. The key requirement in multiprogramming systems is that information structures be represented in a hardware-independent form until the moment of execution, rath ...

11 Termination in language-based systems
Algis Rudys, Dan S. Wallach
May 2002 **ACM Transactions on Information and System Security (TISSEC)**, Volume 5 Issue 2
Full text available: pdf(355.43 KB) Additional Information: full citation, abstract, references, citings, index

terms

Language run-time systems are increasingly being embedded in systems to support run-time extensibility via mobile code. Such systems raise a number of concerns when the code running in such systems is potentially buggy or untrusted. Although sophisticated access controls have been designed for mobile code and are shipping as part of commercial systems such as Java, there is no support for terminating mobile code short of terminating the entire language run-time. This article presents a c ...

Keywords: Applets, Internet, Java, resource control, soft termination, termination

12 A data-flow approach to multitasking on CRAY X-MP computers
Steve Reinhardt
December 1985 **ACM SIGOPS Operating Systems Review , Proceedings of the tenth ACM symposium on Operating systems principles**, Volume 19 Issue 5
Full text available: pdf(475.21 KB) Additional Information: full citation, references, citings, index terms

13 Migration: Luna: a flexible Java protection system
Chris Hawblitzel, Thorsten von Eicken
December 2002 **ACM SIGOPS Operating Systems Review**, Volume 36 Issue SI
Full text available: pdf(1.39 MB) Additional Information: full citation, abstract, references

Extensible Java systems face a difficult trade-off between sharing and protection. On one hand, Java's ability to run different protection domains in a single virtual machine enables domains to share data easily and communicate without address space switches. On the other hand, unrestricted sharing blurs the boundaries between protection domains, making it difficult to terminate domains and enforce restrictions on resource usage. Existing solutions to these problems restrict sharing in an ad-hoc ...

14 Performance evaluation of the Orca shared-object system
Henri E. Bal, Raoul Bhoedjang, Rutger Hofman, Ceriel Jacobs, Koen Langendoen, Tim Rühl, M. Frans Kaashoek
February 1998 **ACM Transactions on Computer Systems (TOCS)**, Volume 16 Issue 1
Full text available: pdf(179.39 KB) Additional Information: full citation, abstract, references, citings, index terms, review

Orca is a portable, object-based distributed shared memory (DSM) system. This article studies and evaluates the design choices made in the Orca system and compares Orca with other DSMs. The article gives a quantitative analysis of Orca's coherence protocol (based on write-updates with function shipping), the totally ordered group communication protocol, the strategy for object placement, and the all-software, user-space architecture. Performance measurements for 10 parallel applications ill ...

Keywords: distributed shared memory, parallel processing, portability

15 Actra-a multitasking/multiprocessing smalltalk
D. A. Thomas, J. McAffer, B. Barry
September 1988 **ACM SIGPLAN Notices , Proceedings of the 1988 ACM SIGPLAN workshop on Object-based concurrent programming**, Volume 24 Issue 4
Full text available: pdf(366.82 KB) Additional Information: full citation, citings, index terms

16 Evaluation of Java thread performance on two different multithreaded kernels
Yan Gu, B. S. Lee, Wentong Cai
January 1999 **ACM SIGOPS Operating Systems Review**, Volume 33 Issue 1

Full text available: pdf(721.12 KB) Additional Information: full citation, abstract, index terms

Modern programming languages and operating systems encourage the use of threads to exploit concurrency and simplify program structure. An integral and important part of the Java language is its multithreading capability. Despite the portability of Java threads across almost all platforms, the performance of Java threads varies according to the multithreading support of the underlying operating system and the way Java Virtual Machine maps Java threads to the native system threads. In this paper, ...

17 System R: relational approach to database management
M. M. Astrahan, M. W. Blasgen, D. D. Chamberlin, K. P. Eswaran, J. N. Gray, P. P. Griffiths, W. F. King, R. A. Lorie, P. R. McJones, J. W. Mehl, G. R. Putzolu, I. L. Traiger, B. W. Wade, V. Watson
June 1976 **ACM Transactions on Database Systems (TODS)**, Volume 1 Issue 2

Full text available: pdf(3.18 MB) Additional Information: full citation, abstract, references, citings, index terms

System R is a database management system which provides a high level relational data interface. The systems provides a high level of data independence by isolating the end user as much as possible from underlying storage structures. The system permits definition of a variety of relational views on common underlying data. Data control features are provided, including authorization, integrity assertions, triggered transactions, a logging and recovery subsystem, and facilities for maintaining ...

Keywords: authorization, data structures, database, index structures, locking, nonprocedural language, recovery, relational model

18 Launching the new era
Kazuhiro Fuchi, Robert Kowalski, Koichi Furukawa, Kazunori Ueda, Ken Kahn, Takashi Chikayama, Evan Tick
March 1993 **Communications of the ACM**, Volume 36 Issue 3

Full text available: pdf(3.45 MB) Additional Information: full citation, references, index terms, review

19 Extended architecture and Hypervisor performance
Carl J. Young
March 1973 **Proceedings of the workshop on virtual computer systems**

Full text available: pdf(235.44 KB) Additional Information: full citation, abstract, citings, index terms

This paper is a brief summary of the impact that architecture extensions to hardware and software have upon the design and performance of software Hypervisors that are intended to provide the extended function in a virtual machine environment.

20 Report of session on transferability
Maria F. Weller
January 1973 **ACM SIGPLAN Notices , Proceeding of ACM SIGPLAN - SIGOPS interface meeting on Programming languages - operating systems**, Volume 8 Issue 9

Full text available: pdf(519.71 KB) Additional Information: full citation, index terms

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